

**Notice of Allowability**

Application No.

10/758,121

Applicant(s)

GOMI ET AL.

Examiner

Albert H. Cutler

Art Unit

2622

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to telephone correspondence of November 13, 2007.
2. ☒ The allowed claim(s) is/are 1-5.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20071106</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance                         |
|  | 9. <input type="checkbox"/> Other _____  |

*N. Vu*  
NGOC-YEN VU  
SUPERVISORY PATENT EXAMINER

### **DETAILED ACTION**

1. This office action is responsive to telephone correspondence with Derek Benke on November 13, 2007.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 9, 2007 has been entered.

### **EXAMINER'S AMENDMENT**

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Derek Benke (Registration No. 56,944) on November 13, 2007.

4. The application has been amended as follows:

Claim 1 (Currently Amended): A signal processing apparatus comprising:

a generator configured to generate a luminance signal of an input video signal;

an extractor configured to extract a high frequency signal from said input video signal, and including a first bandpass filter connected to a coring circuit configured to output said high frequency signal;

a mask generator configured to generate a mask by masking image quality degrading components contained in said high frequency signal, and including an absolute value calculator connected to a ~~second bandpass~~ low pass filter connected to a threshold processor connected to a point eliminator connected to a mask processor configured to output said mask, the ~~second bandpass~~ low pass filter configured to output a ~~bandpassed~~ low passed signal;

a gain factor generator configured to generate a gain factor based on two separate inputs, said two separate inputs being said mask and said low passed signal; a contour correction signal generator configured to generate a contour correction signal by multiplying said high frequency signal by said gain factor; and

a luminance corrector configured to correct said luminance signal based on said contour correction signal.

Claim 4 (Currently Amended): A signal processing method comprising the steps of:

generating a luminance signal of an input video signal;  
extracting a high frequency signal from said input video signal, including bandpass filtering and coring the input video signal, and outputting said high frequency signal;

generating a mask by masking image quality degrading components contained in said high frequency signal, including calculating an absolute value of the high frequency signal, ~~bandpass~~ low pass filtering the absolute value, processing a threshold of the ~~bandpass~~ low pass filtered absolute value to generate a processed signal, eliminating a point in the processed signal and outputting said mask;

generating a gain factor based on two separate inputs, said two separate inputs being said mask and said low passed filtered absolute value;

generating a contour correction signal by multiplying said high frequency signal by said gain factor; and

correcting said luminance signal based on said contour correction signal.

Claim 5 (Currently Amended): A computer readable storage medium storing a computer readable program configured to cause a processor-based device to execute a method comprising:

generating a luminance signal of an input video signal;

extracting a high frequency signal from said input video signal, including bandpass filtering and coring the input video signal, and outputting said high frequency signal;

generating a mask by masking image quality degrading components contained in said high frequency signal, including calculating an absolute value of the high frequency signal, ~~bandpass~~ low pass filtering the absolute value, processing a threshold of the

bandpass low pass filtered absolute value to generate a processed signal, eliminating a point in the processed signal and outputting said mask;

generating a gain factor based on two separate inputs, said two separate inputs being said mask and said low passed filtered absolute value;

generating a contour correction signal by multiplying said high frequency signal by said gain factor; and

correcting said luminance signal based on said contour correction signal.

***Allowable Subject Matter***

5. Claims 1-5 are allowed.

6. The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 4 and 5, the closest prior art of record (Boroczky et al., US 6,950,561) teaches:

A signal processing apparatus(figures 1 and 2), comprising:

a generator configured to generate a luminance signal of an input video signal("luminance in", 2, figure 1);

an extractor(see figure 1) configured to extract a high frequency signal from said input video signal("High Pass Signal", figure 1);

a mask generator(Coding Gain, 14, figures 1 and 2) configured to generate a mask(see columns 3 and 4) by masking image quality degrading components contained in said high frequency signal(The coding gain(14) uses a generated usefulness metric(UME, 18, figure 1) to mask image quality components such as blocking and

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ringing, column 4, lines 46-51.) and including a low pass filter(52, figure 2) and a mask processor configured to output said mask(The coding gain block(i.e. the mask processor) outputs the mask to the gain control block(16), figure 1.), the low pass filter configured to output a low passed signal(column 5; lines 6-18);

a gain factor generator(16, figure 1, or 36, figure 2) configured to generate a gain factor based on said mask and said low passed signal(See column 3, lines 37-40, column 4, line 66 through column 5, line 5. The low pass filter(52, figure 2), is part of the mask generator(14). Therefore, the gain is generated based on said mask and said low passed signal.);

a contour correction signal generator(22, figure 1) configured to generate a contour correction signal by multiplying said high frequency signal by said gain factor(column 3, lines 39-42); and

a luminance corrector(24, figure 1) configured to correct said luminance signal based on said contour correction signal(column 3, lines 43-45).

However, Boroczky et al. do not teach or reasonably suggest a point eliminator, or that a gain factor generator is configured to generate a gain factor based on two separate inputs, said two separate inputs being said mask and said low passed signal.

7. Claims 2 and 3 are allowed as being dependent upon an allowed claim 1.

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

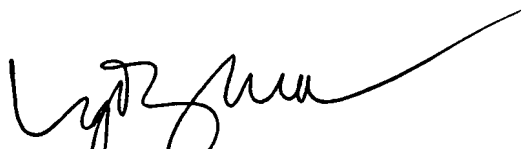
### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

  
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